Manasquan River Bank Stabilization Project
Howell Township, New Jersey

Philadelphia Engineer District

- **Description of Work:**

- **The project consists of stabilizing the eroding right bank along the Manasquan River below Bergerville Road in Howell Township, NJ by constructing a Confined Cellular System (CCS) retaining wall.**
- **Work includes construction of a temporary construction access road, excavation, extension of a storm water sewer line, plantings, and landscaping of selected areas.**
- **In addition, the project will include the installation of sediment and erosion controls, clearing and grubbing, and dewatering**

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Proposed Bank Stabilization Design.

- **The proposed design consists of a retaining wall constructed of cellular confinement system (CCS) grids along the right bank of the Manasquan River parallel to Bergerville Road (aka Casino Drive) for a distance of approximately 250 feet.**
- **The wall will be constructed of 6 foot deep by 8-inch high confined cellular (CCS) grids stacked to a height of 11 feet.**
- **Toe protection to prevent undermining of the CCS retaining wall will be provided by 18 inch deep by 20 foot wide leveling material and CCS scour apron placed perpendicular to the wall.**

Typical Cross Section Through CCS Wall

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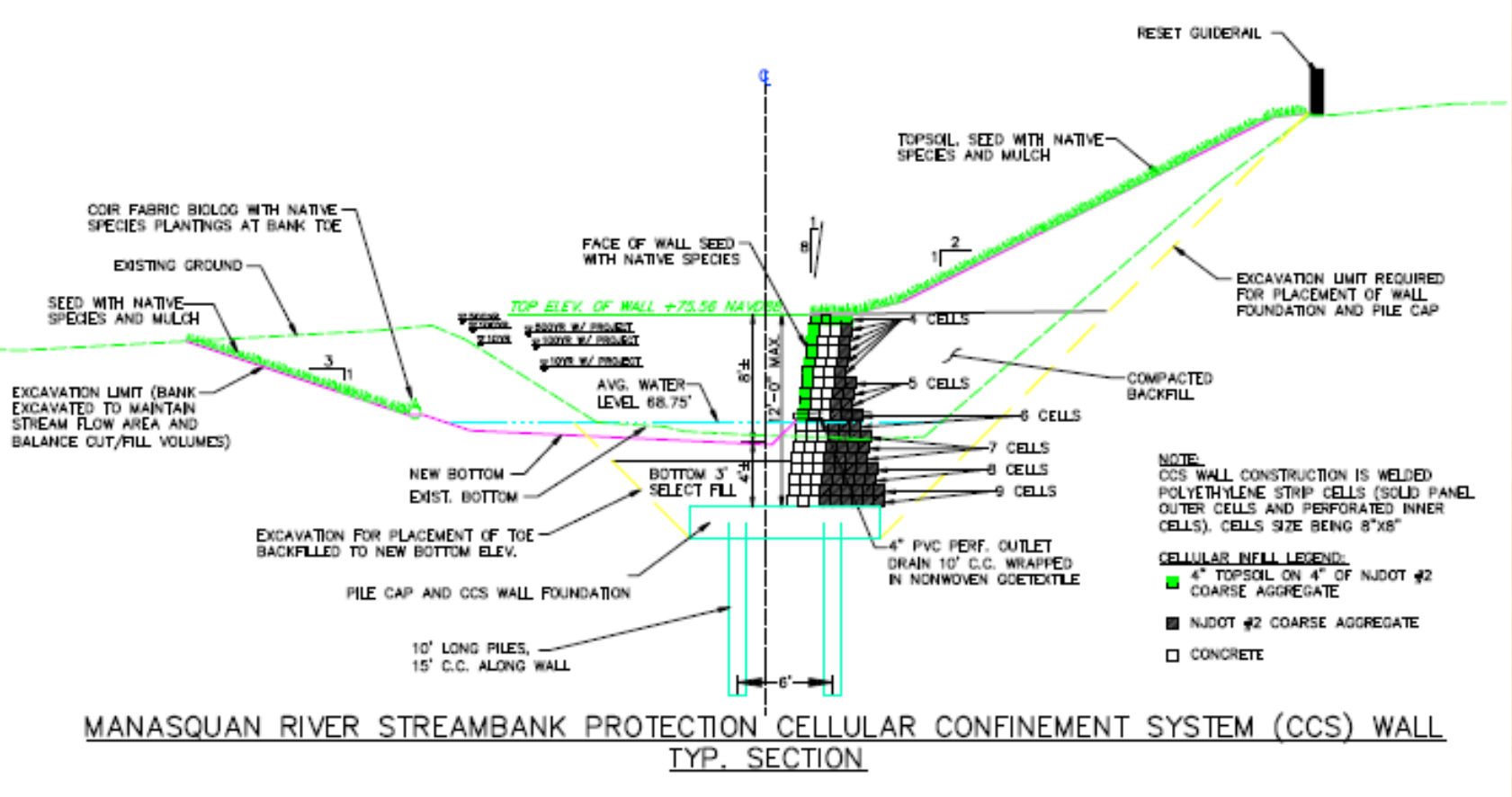
RESET GUIDERAIL
TOPSOIL, SEED WITH NATIVE SPECIES AND MULCH
COIR FABRIC BIOLOG WITH NATIVE SPECIES PLANTINGS AT BANK TOE
EXISTING GROUND
SEED WITH NATIVE SPECIES AND MULCH
FACE OF WALL SEED WITH NATIVE SPECIES
TOP ELEV. OF WALL +75.56 NAVD88
EXCAVATION LIMIT REQUIRED FOR PLACEMENT OF WALL FOUNDATION AND PILE CAP
4 CELLS
5 CELLS
6 CELLS
7 CELLS
8 CELLS
9 CELLS
COMPACTED BACKFILL
AVG. WATER LEVEL 68.75'
8'-H
2'-0" MAX
4'-H
EXCAVATION LIMIT (BANK EXCAVATED TO MAINTAIN STREAM FLOW AREA AND BALANCE CUT/FILL VOLUMES)
NEW BOTTOM
EXIST. BOTTOM
BOTTOM 3' SELECT FILL
EXCAVATION FOR PLACEMENT OF TOE BACKFILLED TO NEW BOTTOM ELEV.
PILE CAP AND CCS WALL FOUNDATION
10' LONG PILES, 15' C.C. ALONG WALL
4" PVC PERF. OUTLET DRAIN 10' C.C. WRAPPED IN NONWOVEN GEOTEXTILE
6'
NOTE:
CCS WALL CONSTRUCTION IS WELDED POLYETHYLENE STRIP CELLS (SOLID PANEL OUTER CELLS AND PERFORATED INNER CELLS). CELLS SIZE BEING 8"X8"
CELLULAR INFILL LEGEND:
4" TOPSOIL ON 4" OF NJDOT #2 COARSE AGGREGATE
NJDOT #2 COARSE AGGREGATE
CONCRETE
MANASQUAN RIVER STREAMBANK PROTECTION CELLULAR CONFINEMENT SYSTEM (CCS) WALL
TYP. SECTION

Typical Cell Section of CCS Wall

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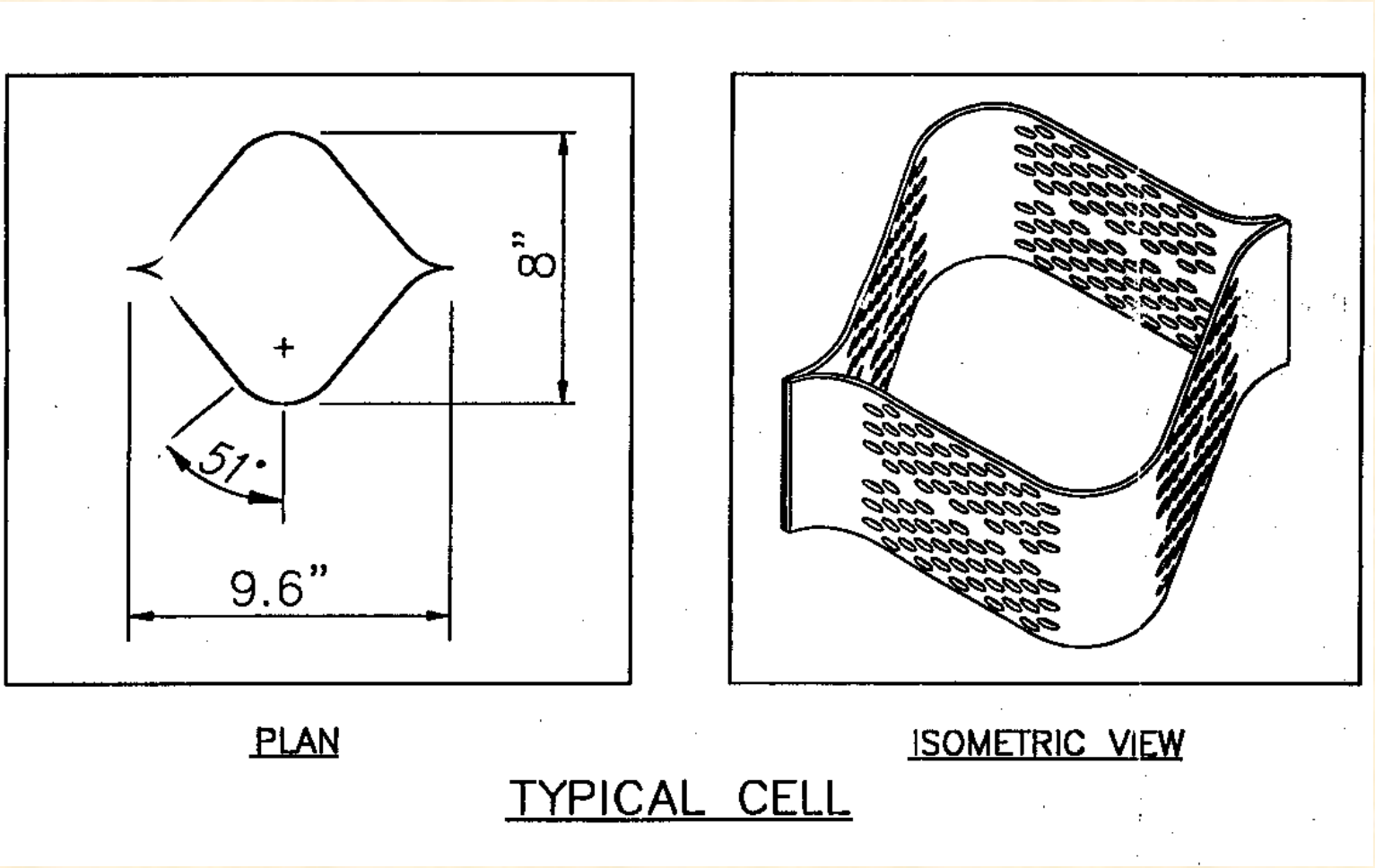

Typical CCS Wall Connection Details

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NOTES FOR STANDARD CONNECTIONS BETWEEN CCS SECTIONS:

1. ADJACENT CCS SECTIONS ARE STAPLED TOGETHER USING MANUFACTURER APPROVED STAPLERS AND STAPLES
2. THE TOP EDGES OF ADJACENT CELL WALLS SHOULD BE HELD FLUSH WHEN STAPLING.
3. SIDE CONNECTIONS BETWEEN EXPANDED CCS SECTIONS SHOULD BE INTERLEAFED AS SHOWN IN FIGURE A. WELDED EDGE SEAMS SHOULD BE ALIGNED WHEN STAPLING.
4. END CONNECTIONS BETWEEN CCS SECTIONS SHOULD BE BUTTED AS SHOWN IN FIGURE B. THE LONGITUDINAL CENTER-LINES OF ABUTTING EXTERNAL CELLS SHOULD BE ALIGNED AND STAPLED AT THE CELL WALL CONTACT POINT.

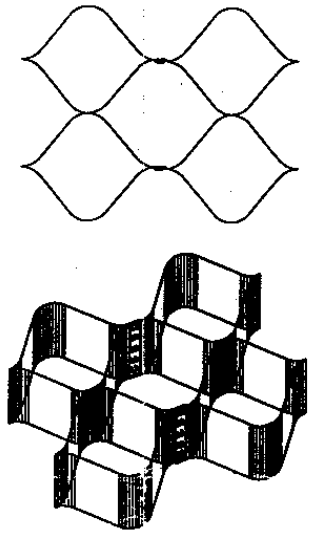

FIGURE A
SIDE CONNECTION DETAIL – INTERLEAFED

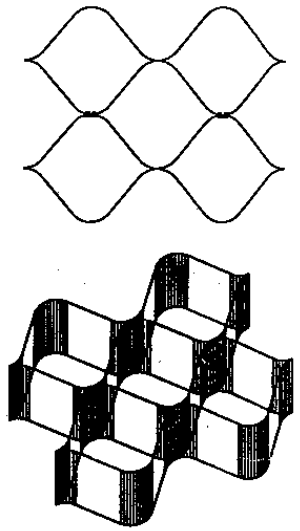

FIGURE B
END CONNECTION DETAIL – ABUTTED

STAPLED END CONNECTION DETAILS

CCS Wall under construction at Molly Ann's Brook, NJ

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Typical CCS wall construction at Molly Ann's Brook, NJ

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Typical CCS wall construction at Molly Ann's Brook, NJ

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Bergerville Road/Casino Drive at Manasquan River Project Site

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Howell Township Efforts to maintain Bergerville Road/Casino Drive at project site

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